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**Article — Accepted Manuscript (Postprint)**

## Gender and corruption: The neglected role of culture

European Journal of Political Economy

**Provided in Cooperation with:**

Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

*Suggested Citation:* Debski, Julia; Jetter, Michael; Möhle, Saskia; Stadelmann, David (2018) : Gender and corruption: The neglected role of culture, European Journal of Political Economy, ISSN 0176-2680, Elsevier, Amsterdam, Vol. 55, pp. 526-537, <https://doi.org/10.1016/j.ejpoleco.2018.05.002>

This Version is available at:

<https://hdl.handle.net/10419/233994>

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PII: S0176-2680(16)30194-X

DOI: [10.1016/j.ejpoleco.2018.05.002](https://doi.org/10.1016/j.ejpoleco.2018.05.002)

Reference: POLECO 1715

To appear in: *European Journal of Political Economy*

Received Date: 25 September 2016

Revised Date: 4 May 2018

Accepted Date: 7 May 2018

Please cite this article as: Debski, J., Jetter, M., Möhle, S., Stadelmann, D., Gender and corruption: The neglected role of culture, *European Journal of Political Economy* (2018), doi: 10.1016/j.ejpoleco.2018.05.002.

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# Gender and Corruption: The Neglected Role of Culture\*

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Mai 2018

**Abstract:** Empirical findings of a negative association between female participation in politics and the labor market, and levels of corruption have received great attention. We reproduce this correlation for 177 countries from 1998 to 2014. However, once taking account of country-specific heterogeneity via fixed effects, these negative associations disappear, both in terms of statistical significance and magnitude. This suggests that female participation rates in politics and the labor market are *not directly* linked to lower corruption. Exploiting country-specific dimensions of culture, we then present evidence from pooled estimations suggesting that power distance and masculinity are systematically associated with both corruption and female participation rates. In fact, these two cultural characteristics are sufficient to fully explain the link between gender and corruption. Therefore, culture is an important dimension to consider when analyzing the relationship between female participation in society and corruption since the omission of cultural characteristics can produce a spurious correlation between increased female participation rates alone and reduced corruption levels.

**Keywords:** corruption, culture, development, female participation, gender, masculinity, power distance.

**JEL Classification:** J16, D73, Z10.

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\* Acknowledgements: We would like to thank Reiner Eichenberger, Arye Hillman, Marco Portmann, Niklas Potrafke, and the participants of the 2016 Annual Meeting of the European Public Choice Society for illuminating discussions and highly constructive remarks on an earlier version of this paper. We are also grateful to Toke Aidt, the editor in charge of this paper, for helpful suggestions to improve the paper.

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*Women aren't better men. They only had fewer opportunities to get their hands dirty.*

(Alice Schwarzer, author and feminist  
Frankfurter Allgemeine Zeitung, April 2008, translated from German)

## I. INTRODUCTION

Over the past decades, governments and international organizations around the world have implemented policies aimed at increasing the share of women in politics and the labor market. In 2015, the UN member states renewed their commitment to “achieve gender equality and empower all women and girls” by adopting the Sustainable Development Goals (United Nations 2015). The Copenhagen Consensus Center (2015) estimates that the benefits per US-Dollar spent on increasing women’s political representation are “likely to be high”. Similarly, the McKinsey Global Institute (2015) highlights the importance of integrating women into the labor market, suggesting potential gains in terms of annual GDP of \$28 trillion in 2025, equivalent to 26 percent of global output.

Achieving gender equality is an important goal in itself and desirable to achieve for a numerous reasons. One particular positive and appealing effect of increased female participation in society has been linked to corruption. Two influential studies suggest that women, on average, seem to be less corrupt than their male counterparts (Dollar, Fisman, and Gatti 2001; Swamy et al. 2001). This hypothesis, buttressed by the associated research findings from cross-country correlations, has influenced governments to bring more women into public offices.<sup>1</sup> At the same time, the view of attributing women a positive role in lowering overall corruption levels found a

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<sup>1</sup> The Peruvian government decided to replace a part of the male traffic police of Lima by a new team consisting exclusively of female officer and a women-only traffic force was established by the chief police officer of Mexico City (Goetz 2007, Anozie et al. 2004). Similarly, but to a lesser extent, El Salvador, Panama, Ecuador, and Bolivia incorporated women in their transit divisions (Karim 2011). The idea of feminizing important decision-makers to fight corruption was also put into practice in Uganda, where president Museveni assigned the majority of treasury positions in the new local government system to women (Goetz 2007).

lively response in academic research.<sup>2</sup> However, existing studies usually rely on cross-country evidence, as repeated country-level information on both female representation and corruption has been limited. Ideally, we would like to know whether increasing female participation *within* a given country decreases corruption levels and to do so we need to observe a set of countries for a certain period of time.<sup>3</sup>

As for women's roles in society throughout the world, we now have substantial evidence of historical and cultural factors playing an important role (Alesina, Giuliano, and Nunn 2013). Specifically, cultural roots have been strongly associated with corruption levels (Fisman and Miguel 2007; Barr and Serra 2010). Thus, the previously conducted cross-country studies on the link between gender and corruption could potentially be traced to country-specific cultural differences.

As a first contribution, this article analyzes the relationship between gender and corruption using annual panel data for up to 177 countries from 1998 to 2014. Specifically, we distinguish between the role of women in politics and in the labor force when analyzing potential links to corruption. We begin by replicating the key result of Dollar, Fisman, and Gatti (2001) and Swamy et al. (2001), which suggests that higher female participation in parliament and the labor force is associated with less corruption. We then introduce country fixed-effects to generally account for time-invariant unobserved heterogeneity on the country level that may affect the link between gender and corruption, such as cultural, geographical, and institutional factors. Female participation in society has substantially risen over the sample period and the change in participation varies notably across countries and over time. The corresponding empirical results from fixed-effects regressions differ systematically from the existing evidence derived from pure

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<sup>2</sup> This response is also reflected by the numerous citations the original papers receive.

<sup>3</sup> Unobserved heterogeneity between countries has been shown to matter. For instance, determinants of economic growth (Islam 1995), democracy (Acemoglu et al. 2008), and government size (Ram 2009; Jetter and Parmeter, 2015) change fundamentally once country-specific, time-constant characteristics are taken into account.

cross-country studies: Changes in the share of women in parliament (WIP) or the female labor force participation (FLFP) within a country do not predict within-country changes in corruption levels. In fact, we find relatively precisely estimated zero effects for the link between gender and corruption once we account for country-fixed effects.<sup>4</sup>

As a second contribution, we then focus on the interplay between culture, gender, and corruption. To test the hypothesis that distinct cultural factors could simultaneously drive the level of female representation in society and corruption, thereby causing a spurious correlation in the cross section, we turn to Hofstede's (1980, 2001, 2011) cultural dimensions. We identify two cultural factors that mediate the link between gender and corruption: Power distance and masculinity. Once we control for these cultural dimensions in a pooled setting with region- and time-fixed effects (since cultural variables are only available once per country), the relationship between female participation in the public sphere and corruption vanishes entirely. These findings are confirmed when instrumenting power distance with genetic distance from the United Kingdom (Gorodnichenko and Roland, 2011, 2016) to alleviate potential endogeneity concerns.<sup>5</sup> In sum, disregarding the role of distinct cultural attributes can lead to biased results and the idea that increasing female participation *per se* could be an effective means to directly alleviate corruption levels. Additional robustness tests with different corruption measures substantiate these results.

The paper proceeds as follows: Section II reviews the literature and presents theoretical considerations on the interplay between gender, culture, and corruption. Section III describes our data and empirical methodology. In Section IV, we present our main findings, address endogeneity concerns, and discuss a range of robustness tests. Section V concludes.

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<sup>4</sup> The precisely estimated zero effects of the effect of gender on corruption imply a high power for our statistical tests which is relevant as our first result is a negative one.

<sup>5</sup> To measure genetic distance from the United Kingdom, Gorodnichenko and Roland (2018, p. 403) "use a measure of genetic distance between the population in a given country and the population in the United Kingdom." They further propose that "measures of genetic distance can be seen as a proxy measure of differences in cultural values."

## II. LITERATURE AND THEORETICAL CONSIDERATIONS

Two influential cross-country studies suggest that women might be less prone to corruption than men. Dollar, Fisman, and Gatti (2001) find a negative and statistically significant association between the share of women in parliament and the level of corruption. Swamy et al. (2001) find the same association for female representation in senior positions in government bureaucracy and in the labor force. These results are confirmed when using more recent data, as shown by Watson and Moreland (2014).<sup>6</sup> Torgler and Valev (2010) analyze compliance data from the World and European Values Survey for Western European countries and find that women are less tolerant of corruption. Taken literally, these results suggest policy initiatives aimed at increasing the number of women in public life will alleviate corruption levels.

Similar results are suggested by experimental studies examining gender differences towards corruption (e.g., Schulze and Frank 2003; Frank, Lambsdorff, and Boehm 2011; Chaudhuri 2012; Rivas 2013; Barnes and Beaulieu 2014). Yet, while laboratory studies help us to better understand certain behavioral mechanisms, results need to be interpreted with caution, especially with respect to women in public office: Politicians are a specific, self-selected group (Ruske 2015; Kauder and Potrafke 2016) that may not necessarily be comparable to participants in laboratory studies.

Recently, a growing body of research casts doubt on a causal effect of female representation on corruption. Some studies question the direction of causality and argue that male-dominated patronage networks make it more difficult for women to enter politics and engage in corrupt practices in the first place (e.g., Alhassan-Alolo 2007; Goetz 2007; Stockemer 2011; Sundström and Wängnerud 2014). Others doubt the general existence of a universal link between gender and corruption, as well as gender and governance (Branisa and Ziegler 2011; Stadelmann et al. 2014). Research has also focused on potentially mediating factors. Sung (2003) proposes a “fairer

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<sup>6</sup> Related to that, numerous studies (e.g., Glover et al. 1997; Eckel and Grossman 1998; Grove et al. 2011; Hicks et al. 2016) suggest women to be more trustworthy, less opportunistic, and more public-spirited than men. May et al. (2018) point to systematic differences between economic policy views held by male and female economists.

system” rather than “fairer sex” hypothesis.<sup>7</sup> Further cross-country evidence suggests the relationship to be specific to democracies (Esarey and Chirillo 2013) and particularly present when electoral accountability is high (Esarey and Schwindt-Bayer 2017).

In this context, studies aiming to cope with the problem of unobserved heterogeneity across countries are scarce (e.g., Sung 2012). We contribute to this literature by conducting an extensive panel data analysis of the potential link between the participation of women in parliament and in the labor market, and corruption, accounting for country fixed-effects. This allows us to control for country-specific time-invariant characteristics, isolating a potential link between female participation in society and corruption in a much cleaner fashion.

We then advance existing research by proposing an alternative explanation for the cross-country association between gender and corruption: Cultural heterogeneity. Hinting at this idea, Alatas et al. (2009) provide evidence that gender differences in corruptibility might be culture-specific, using an experimental setting. Employing cultural characteristics on the country level, we turn to Hofstede’s conceptualization of culture (Hofstede 1980, 2001, 2011; Hofstede, Hofstede, and Minkov 2010). Hofstede (2011: 3) defines culture as “the collective programming of the mind that distinguishes the members of one group or category of people from others.” Initially, his research on differences in cultural values was based on employee surveys collected within IBM in about 40 countries between 1967 and 1973, but by now the cultural concept covers more than 100 countries. Applying factor analysis, Hofstede identifies four core dimensions of culture:

1. First, *power distance* measures the degree to which less powerful members of society accept and expect that power is distributed unequally.
2. Second, *uncertainty avoidance* expresses a society’s tolerance when it comes to ambiguity and uncertainty.<sup>8</sup>

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<sup>7</sup> Sung’s (2003) results suggest that the correlation between gender and corruption shrinks and loses statistical significance once measures of liberal democracy are accounted for.



3. Third, the *individualism vs. collectivism* dimension measures the degree of interdependence between the members of society.<sup>9</sup>
4. Forth, the *masculinity vs. femininity* dimension refers to the social preference for male values generating a more competitive social environment as opposed to female values that are more consensus-oriented.<sup>10</sup>

This conceptualization has been also used in the literature, including research on corruption (e.g., Husted 1999; Park 2003; Sanyal 2005; Seleim and Bontis 2009; Gorodnichenko and Roland 2011). For example, Yeganeh (2014) provides evidence that high levels of power distance, uncertainty avoidance, collectivism, and masculinity tend to promote corruption. Getz and Volkema (2001) argue that the clear separation between socioeconomic classes in countries with high power distance increases the likelihood of corrupt behavior. In highly masculine societies, Sanyal (2005: 144) hypothesizes that “an aggressive pursuit of success and achievement appears to accompany corrupt conduct”. Several studies address Hofstede’s cultural dimensions in the context of gender equality (e.g., Luthar and Luthar 2002; Cheung and Chan 2007; Parboteeah, Hoegl, and Cullen 2008). Following Hofstede’s (2001) definition of masculinity, Cheung and Chan (2007) argue that the gender gap is smaller in low-masculinity countries, gender roles are more progressive, and consequently women are elected into parliament more frequently. Based on the existing literature, we hypothesize that particularly power distance and masculinity play a relevant role in influencing the relationship between female representation and corruption.

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<sup>8</sup> Uncertainty avoidance is not the same as the economic concept of risk avoidance but rather measures whether the members of a culture feel comfortable in unstructured, unknown, or new situations.

<sup>9</sup> In collectivist societies, members are integrated into strong cohesive groups, whereas in individualist societies only loose interpersonal connections exist, and everybody is supposed to care for themselves.

<sup>10</sup> While feminine countries are characterized by overlapping social gender roles, “masculinity stands for a society in which social gender roles are clearly distinct” and material success is highly valued (Hofstede 2001: 297).

### III. DATA AND METHODOLOGY

#### III.1 Data

We analyze the relationship between gender and corruption for up to 177 countries between 1998 to 2014. Our first measure of corruption is the Corruption Perceptions Index (CPI, provided by Transparency International), on which scoring zero corresponds to “highly corrupt,” whereas a score of ten indicates the country to be “very clean” of corruption.<sup>11</sup> We also provide estimates using the Control of Corruption index (CoC) from the World Bank’s Worldwide Governance Indicators dataset (Kaufmann, Kraay and Mastruzzi 2013) to ensure that our results are not peculiar to the CPI. The corresponding results prove to be robust and consistent with our interpretation of the empirical results and are referred to Table A8 in the appendix.

Our main independent variables of interest are two different measures of female participation in society. First, the World Bank provides annual data on the percentage of women in parliament (denoted *WIP*) based on monthly data reported by the Inter-Parliamentary Union. More specifically, we consider the fraction of seats held by female delegates in single or lower chambers of national parliaments. In practice, women in parliament can affect overall corruption levels both by influencing legislative corruption, as well as influencing bureaucratic and judicial corruption by passing laws preventing bribery or bringing corruption to the public agenda, as argued by Swamy et al. (2001). Second, we use the female labor force participation rate (denoted *FLFP*), measured as the number of working women divided by the number of working men (provided by the International Labour Organization database, ILO), as an indicator for participation of women in society. A motivation for considering women in the labor force is that female workers might be less likely to offer bribes than males in the same situation (Swamy et al.

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<sup>11</sup> The CPI is widely used in the cross-country and panel literature (see Correa et al., 2016, among others). However, from 2012 on, a different methodology has been used to calculate the CPI. We take account of this change and conduct a robustness check including exclusively values until 2011.

2001). Furthermore, women are less likely to be part of “bribe-sharing old boy networks” and therefore might be asked for bribes less frequently (Goetz 2007).

Throughout our analysis, we control for a comprehensive list of potentially confounding factors, as identified by the associated literature. In particular, Treisman (2007) summarizes that highly developed countries and established democracies with a high degree of openness are generally perceived as less corrupt. Hence, we include the log and squared log of GDP per capita to account for potentially non-linear effects of overall economic development. Including the Polity IV index (in particular the variable *polity2*) controls for a country’s level of democracy, whereas exports and imports as a share of GDP account for an economy’s openness to trade. As is common in the literature (e.g., Dollar, Fisman, and Gatti 2001; Esarey and Chirillo 2013; Bhattacharyya and Hodler 2015), we also control for geographic differences when running cross-country regressions by including binary indicators for each of the seven regions of the world, as classified by the World Bank. Further, we include the fraction of land in the tropics or subtropics, using data from Alesina, Giuliano, and Nunn (2013), and a binary indicator for landlocked countries. By employing these geographic variables we aim to account for possible geographic and climatic determinants that may simultaneously affect the incidence of corruption and the presence of women in politics and the labor force.

Finally, we introduce Hofstede’s cultural dimensions to analyze the interplay between gender, corruption, and culture. The dimensions power distance, uncertainty avoidance, masculinity, and individualism are measured on a scale from 0 to 100. As such, culture in a given country is measured relative to others.<sup>12</sup> Countries with high values are relatively more hierarchical, display a higher preference for avoiding uncertainty, are more individually oriented,

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<sup>12</sup> Hofstede (2011: 22) argues that this is an important reason why the country dimension scores can be considered valid for very long time periods, say, 50 to 100 years. While it is, of course, possible that individual countries change their ranking on the cultural dimensions, Hofstede considers this “a relatively rare occurrence” (Hofstede 2011: 22).

and more dominated by male values.<sup>13</sup> It is important to note that these country-specific measures can largely be considered time-invariant as culture changes very slowly over time (Hofstede 2011), especially when considering our sample period of 17 years.

All variables and the respective sources are presented with their summary statistics in Table A1 in the appendix.

### III.2 Methodology

Using the above variables, we first test the hypothesis previously advanced in cross-country studies (Dollar, Fisman, and Gatti 2001; Swamy et al. 2001; Watson and Moreland 2014) that female participation in society is associated with lower levels of corruption. Our basic model specification is

$$Corruption_{i,t} = \alpha_0 + \alpha_1 Female_{i,t} + \alpha_2 \mathbf{X}_{i,t} + \lambda_t + \epsilon_{i,t} \quad (1)$$

where  $i$  and  $t$  represent the country and year index.  $Female_{i,t}$  captures the respective measure for women's involvement in politics (women in politics, *WIP*) and the labor force (female labor force participation, *FLFP*), whereas the vector  $\mathbf{X}_{i,t}$  incorporates the discussed control variables. We further add time fixed-effects with  $\lambda_t$  and  $\epsilon_{i,t}$  constitutes the conventional error term. In all estimations, error terms are clustered at the country level. With equation (1), we re-evaluate whether the association between gender and corruption is still observed when using a larger dataset in a pooled model. Note that, due to the inverse coding of our corruption measures, a positive coefficient  $\alpha_1$  implies that an increase in female participation is associated with less corruption.

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<sup>13</sup> While Hofstede, Hofstede and Minkov (2010) provide data on the cultural dimensions for 76 countries, the Hofstede Centre has extended the database to more than 100 countries. The framework has also been extended by two dimensions, namely *long-term vs. short-term orientation* and *indulgence vs. restraint*. Due to data limitations, these parameters are not included in this analysis.

As a next step, and in extension to the previous literature, we exploit the panel structure of our data by introducing country fixed-effects. This allows us to control for time-invariant country-specific characteristics that might influence both the level of corruption and female representation. Specifically, we formulate

$$Corruption_{i,t} = \beta_0 + \beta_1 Female_{i,t} + \beta_2 X_{i,t} + \lambda_t + \gamma_i + \varepsilon_{i,t}, \quad (2)$$

where  $\gamma_i$  denotes country fixed-effects. Thus, equation (2) takes advantage of within-country variation only, eliminating between-country differences that may stem from underlying country-specific particularities, such as culture, geography, or history. If the relationship between female participation and corruption levels is spurious due to an omitted variable bias,  $\beta_1$  should be close to zero and statistically insignificant.

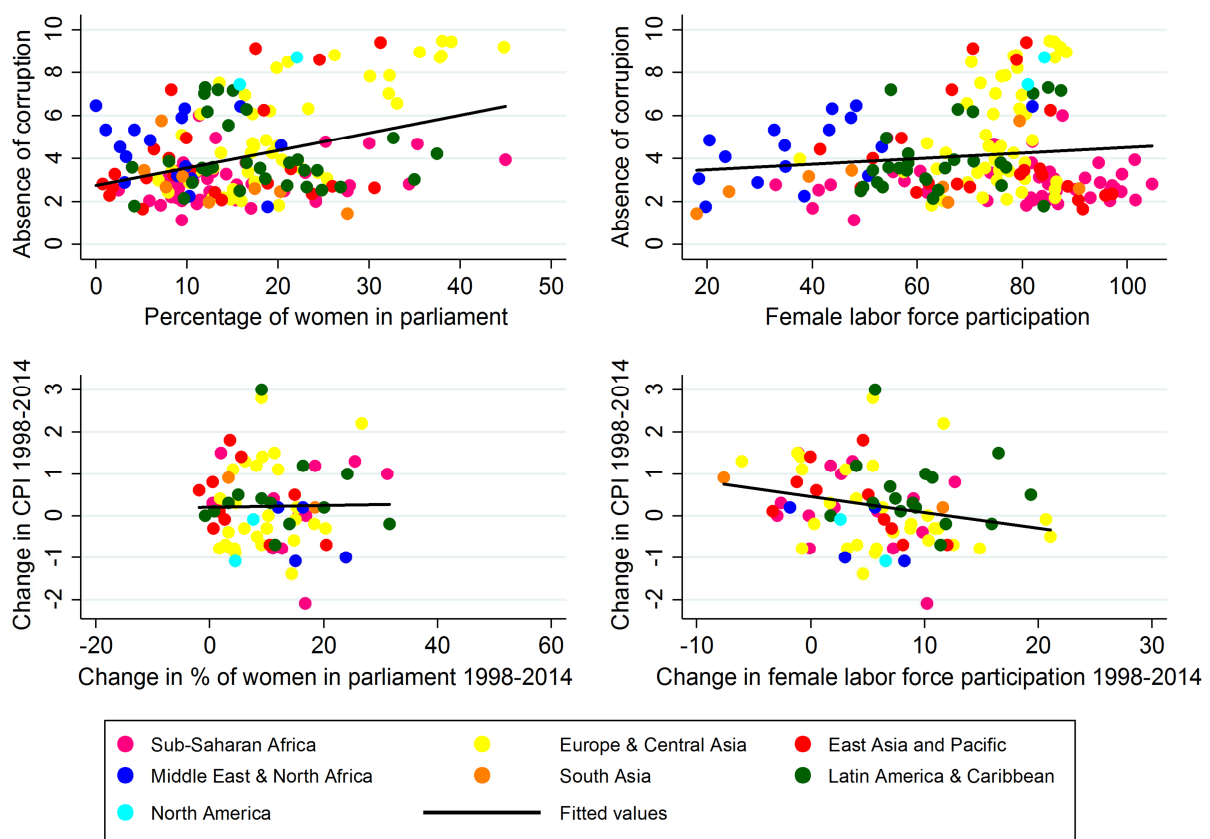
It is important to note that introducing country-fixed effects arguably presents a much more rigid econometric specification than the pooled analysis sketched in equation (1). Theoretically, even meaningful relationships between independent variables and the outcome variable could be concealed if not enough year-to-year variation existed in any of the variables of interest. However, in our setting, we observe substantial variation over time for all variables of interest. In fact, for a relevant number of countries *WIP* increases by more than 15 percentage points for the years analyzed and *FLFP* also exhibits relevant changes over time. Similarly, corruption levels fluctuate by up to three points on a ten point scale. Figure A1 in the Appendix provides yearly boxplots for all three of our main variables and Figure 1 documents the substantial changes over time in our key variables. Further, when using an alternative way to account for country-specific characteristics in analyzing first-differences between the first and last observation of each country the results are consistent with our main conclusions (see Table 1).<sup>14</sup>

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<sup>14</sup> First differencing allows the estimator to capture the changes of both variables over a longer time period, again using only within-country variation. We take first differences of all variables from 2014 to 1998 and then regress the first difference in corruption on the first difference of the independent variables. These tests give statistically and economically similar results as the more stringent fixed effects setting.

As a next step, we analyze the interplay between gender, corruption, and culture by incorporating Hofstede's time-invariant cultural dimensions power distance, uncertainty avoidance, masculinity, and individualism into our pooled OLS framework (1). Finally, we also present results from instrumental variable estimations and introduce the respective regression structure as we discuss the corresponding findings.

**Figure 1: Women and corruption: Positive associations for averaged data (1998-2014), but no associations for changes between 1998-2014**



*Notes:* In the first row, values of the CPI, the percentage of women in parliament, and female labor force participation (working women over men) are averaged by country from 1998 to 2014. The correlation coefficient of the percentage of women in parliament is 0.37 and for female labor force participation 0.13. For the scatterplots in row two, we compute the changes of CPI and female representation over the time period 1998-2014. See Table A1 in the appendix for data definitions and sources.

## IV. EMPIRICAL RESULTS

### IV.1 Main empirical findings

Figure 1 illustrates the motivation of our analysis. While we observe a positive correlation between the percentage share of women in parliament and the absence of corruption in a cross-sectional setting, this association disappears once the changes of these variables over the time period from 1998-2014 are considered. For the *FLFP* rate, the cross-sectional correlation is already weaker, and looking at changes over time even reveals, if anything, a weakly *negative* relationship. Thus, a change in female participation in politics and the labor force does not seem to be associated with a favorable change in corruption levels.

The initial insights gained from Figure 1 are fully supported by the econometric analysis, as documented in Table 1. Results from pooled cross-sectional regressions are in line with those from Dollar, Fisman, and Gatti (2001), Swamy et al. (2001), and Watson and Moreland (2014), i.e., higher levels of female participation in politics and the labor force are associated with lower levels of corruption. In the univariate regressions presented in columns (1) and (5), both *WIP* and *FLFP* are positively associated with the absence of corruption. The respective coefficients are statistically significant on the one and five percent level.

However, once country fixed-effects are included, the link disappears entirely for both measures of female participation in society. As shown in column (3), the coefficient for the fraction of women in parliament becomes insignificant on conventional levels of statistical relevance and decreases markedly to a relatively precisely estimated zero effect. Evaluated in comparison to the originally estimated coefficient size by Dollar, Fisman, and Gatti (2001) and coefficient sizes of columns (1) and (2) the statistical power of the test is close to perfect.

**Table 1: Female participation and corruption – Zero effect once country fixed-effects are introduced. 1998-2014.**

Dep. variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CPI	OLS	OLS	FE	FD	OLS	OLS	FE	FD
				14/98				14/98
WIP	0.076*** (0.016)	0.023*** (0.007)	<b>0.003</b> <b>(0.005)</b>	<b>0.014</b> <b>(0.015)</b>				
FLFP					0.015** (0.007)	0.009** (0.004)	<b>-0.015</b> <b>(0.009)</b>	<b>-0.010</b> <b>(0.016)</b>
Ln (GDPp.c.)		-3.027*** (0.426)	1.286 (1.003)	2.773* (1.495)		-2.949*** (0.486)	1.200 (0.961)	2.785* (1.417)
Ln (GDPp.c.) Squared		0.247*** (0.026)	-0.015 (0.068)	-0.073 (0.100)		0.245*** (0.030)	-0.024 (0.064)	-0.108 (0.091)
Time FE	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Country FE	No	No	Yes	No	No	No	Yes	No
# of observations	2350	2302	2302	74	2443	2389	2389	83
# of countries	181	177	177	74	180	177	177	83
R <sup>2</sup>	0.152	0.769	0.147	0.204	0.032	0.765	0.135	0.145

Notes: In columns (1), (2), (6) and (7) OLS estimates are reported. In columns (3) and (8), the fixed effects estimator is applied to the whole panel ranging from 1998 to 2014. In columns (4) and (9), and (5) and (10), respectively, the data are first differenced over the whole panel (2014-1998), and ten years (2014-2004). Robust standard errors are reported in parentheses. They are clustered at the country level in columns (1)-(3) and (6)-(8). \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

When focusing on women in the labor force as the explanatory variable of interest, even a *negative* coefficient emerges (column 7) though of a small magnitude. Again, the coefficient is relatively precisely estimated and the power of the test is substantial compared to any positive benchmark value.

In specifications (4) and (8) we additionally look at first differences from the beginning to the end of our sample. When first differencing the data over the whole sample period, the measures of female participation turn statistically insignificant at conventional levels and the magnitude of the implied effect is small; for the female labor force participation it is, if anything, *negative*. To increase the sample size, we also looked at first differences over the ten-year period from 2004 to 2014 and the interpretation of the results remains unchanged, i.e., we do not find any relevant association, neither in terms of statistical significance nor of economic relevance.

These findings are important, especially in the light of possible policy conclusions: Once we control for country-specific heterogeneity, the positive correlation between female participation in society and corruption disappears.



#### ***IV.2 Making sense of the evidence: The importance of culture***

The results from first difference estimates and the panel data analysis show that a fixed effect can explain the association between female representation and decreased corruption levels previously assumed in the literature. This suggests that the relationship between gender and corruption is mediated by a time-invariant source of heterogeneity across countries. Such a factor may influence both a country's level of corruption and the participation of women in politics and the labor force. Cultural, institutional, or geographical characteristics are the most obvious candidates for time-invariant differences across nations, as they have been shown to influence economic development at a fundamental level. While some of these factors, such as culture and institutions, can change over time, they are likely changing slowly, especially in light of our sample period of 17 years. In the following, we aim to identify the source of time-invariant unobserved heterogeneity across countries. In other words, we want to know which factor captured by the fixed effects is responsible for rendering the relationship between gender and corruption irrelevant.

First, with respect to institutions, democracy has been shown to affect the association between gender and corruption (Sung 2003; Esarey and Chirillo 2013). Specifically, we enrich our regression analysis with the Polity IV index (variable *polity2*). Second, we account for trade openness, region fixed-effects, a binary indicator for landlocked countries, and a tropical climate index to capture differences across countries due to geographic conditions. To give the previous results of the literature the best chance to emerge, we analyze pooled data again over the whole period of time.

Third, regarding cultural aspects, we include Hofstede's four main cultural dimensions, i.e., individualism, masculinity, uncertainty avoidance, and power distance. While culture can change over time, it is a very slow-moving process. In fact, Hofstede (2011: 22) specifically argues that

cultural change basic enough to invalidate his country scores will only happen over a very long time period of at least 50 to 100 years, or as a result of dramatic outside events. Following this line of argument and using Hofstede's data, we consider culture within a given country as constant over our sample period and as a potential candidate to explain the fixed effects finding.

**Table 2: Women, culture and corruption: Power distance and masculinity render the effect of female participation in politics and the labor market statistically insignificant. 1998-2014.**

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS	(9) OLS	(10) OLS
WIP	0.029*** (0.007)	0.029*** (0.011)	0.004 (0.010)	0.017 (0.011)	0.016 (0.011)					
FLFP						0.009* (0.005)	0.017* (0.009)	0.004 (0.008)	0.012 (0.010)	0.011 (0.008)
Ln (GDP/cap)	-2.430*** (0.488)	-2.023** (0.872)	-1.590** (0.672)	-1.683** (0.732)	-1.941*** (0.669)	-2.517*** (0.553)	-1.975** (0.803)	-1.509** (0.707)	-1.502** (0.725)	-1.785** (0.691)
Ln (GDP/cap) <sup>2</sup>	0.211*** (0.029)	0.193*** (0.049)	0.166*** (0.039)	0.170*** (0.042)	0.197*** (0.039)	0.220*** (0.033)	0.194*** (0.046)	0.162*** (0.041)	0.161*** (0.041)	0.190*** (0.040)
Polity IV	0.048*** (0.012)	0.034* (0.020)				0.048*** (0.014)	0.029 (0.021)			
Openness	0.003 (0.002)	0.003 (0.002)				0.002 (0.002)	0.003 (0.002)			
Landlocked	0.084 (0.161)	-0.012 (0.277)				0.055 (0.159)	-0.191 (0.263)			
Tropical climate	-0.363 (0.287)	-0.545 (0.395)				-0.410 (0.312)	-0.515 (0.436)			
Uncertainty avoidance			-0.005 (0.005)					-0.005 (0.005)		
Individualism			0.008 (0.008)					0.008 (0.008)		
Power distance			-0.012** (0.005)	-0.018*** (0.005)				-0.012** (0.005)	-0.019*** (0.006)	
Masculinity			-0.020*** (0.006)		-0.020*** (0.005)			-0.020*** (0.005)		-0.021*** (0.005)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of observations	1,987	1,317	1,317	1,317	1,317	2,057	1,317	1,317	1,317	1,317
# of countries	152	90	90	90	90	152	90	90	90	90
R <sup>2</sup>	0.819	0.812	0.843	0.817	0.827	0.807	0.807	0.843	0.816	0.826

Notes: Dependent variable: CPI. Robust standard errors clustered at the country level are reported in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 2 investigates whether any of these country-specific variables are responsible for the zero-effect estimated in the fixed-effects regressions in Table 1. Columns (1) and (6) begin by replicating our main regression for employing *WIP* and the *FLFP*. We then re-estimate the

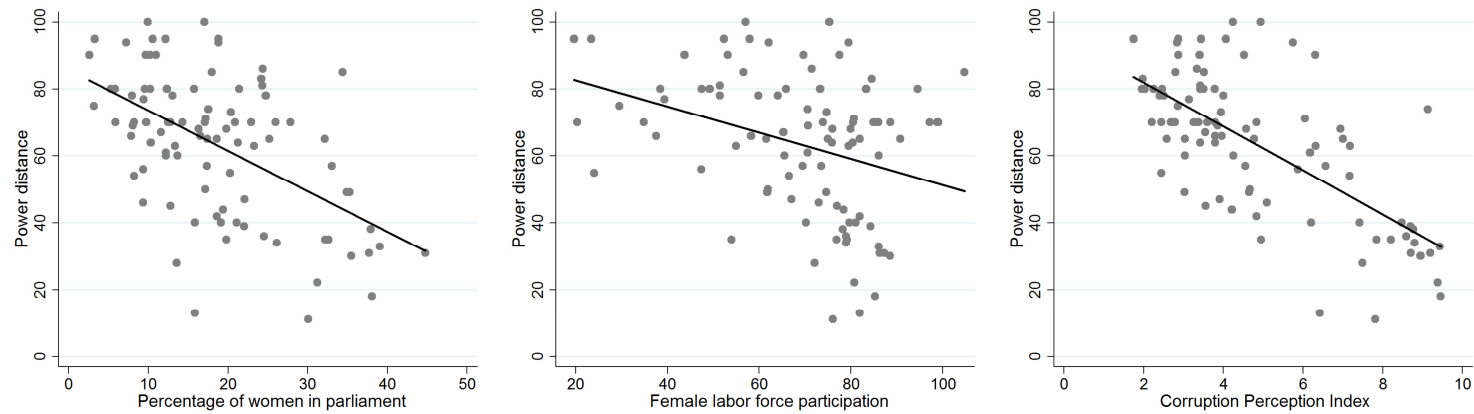
respective regression when only employing those observations for which the cultural variables are available (specification 2 and 7). This comparison aims to demonstrate that none of the upcoming results are driven by potential sample selection. While a positive correlation between gender and the absence of corruption holds when including our institutional and geographic variables, the association entirely disappears once cultural variables are introduced in columns (3) – (5) and (8) – (10). (The corresponding results associated with power distance and masculinity in columns (3) – (5) and (8) – (10) remain virtually unchanged when also controlling for the institutional and geographical covariates.)

Thus, cultural characteristics turn out as valid omitted variables that systematically affect the gender-corruption nexus. More precisely, the results of columns (4) and (5), as well as columns (9) and (10), indicate that higher levels of power distance and masculinity in society facilitate corruption. At the same time, just one of these two indicators is sufficient to render the effects of female participation statistically meaningless. When power distance is included in specifications (4) and (9), the effect of women in society vanishes and the same holds when only masculinity is included in specifications (5) and (10).

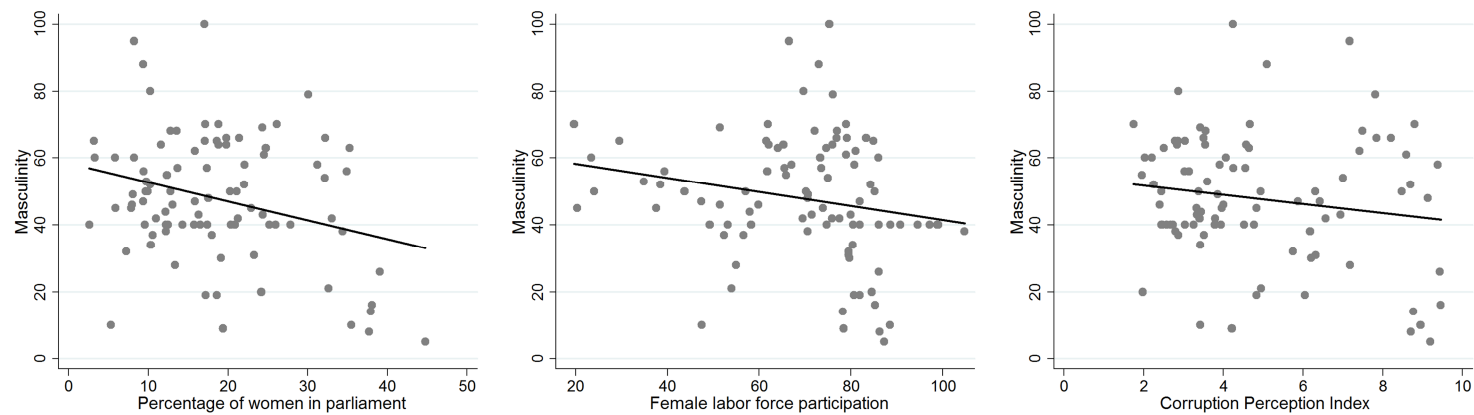
Figure 2 helps to explain the statistically insignificant effects of women in the public sphere on corruption, once cultural factors are accounted for. Power distance is negatively correlated with both measures of female participation and with the CPI, and the same holds for masculinity. Thus, analyses omitting power distance or masculinity, respectively, are likely to overestimate the effect of female participation on the absence of corruption.

Consequently, earlier studies may have led to interpretations that exaggerate the role of female participation in explaining corruption levels. At the very least, this highlights that policy interventions aimed at increasing female participation alone are unlikely to be successful in directly alleviating corruption. Next, we now turn to addressing potential endogeneity concerns in order to test the robustness of our findings.

**Figure 2: Correlations: Women, culture, and corruption (1998-2014 average)**



*PANEL A. Correlation of power distance with women in parliament, female labor force participation, and corruption*



*PANEL B. Correlation of masculinity with women in parliament, female labor force participation, and corruption*

### *IV.3 Addressing endogeneity concerns*

A common concern in the cross-country literature relates to endogeneity issues. In our case, reverse causality could influence our point estimates, as it is possible that corruption in turn affects cultural characteristics. Further, societies characterized by high power distance or masculinity may also be more corrupt because of other, unobserved dynamics, such as distinct historical developments or institutional arrangements previously not considered. To alleviate such concerns as well as possible, we present instrumental variables for our cultural variables. In particular, we follow Gorodnichenko and Roland (2011, 2016) by using genetic distance as an instrumental variable for Hofstede's cultural dimensions. We use the Mahalanobis distance of the frequency of blood types A and B in a given country relative to the frequency of blood types A and B in the UK.<sup>15</sup> As Gorodnichenko and Roland (2011, 2016) argue, using the frequency of blood types as an instrument for cultural attributes is attractive for two reasons: First, it is a neutral genetic marker and second, it is the most broadly available genetic information, allowing for wide country coverage of the instrument. We want to briefly sketch the intuitive reasoning and validity of the instrument and refer to Gorodnichenko and Roland (2011, 2016) for further details. The authors argue that parents transmit both their genes and their cultural values to their descendants. Populations that mix should consequently be genetically and culturally similar as in both cases the transmission mechanism is at work. Thus, measures of genetic distance can be seen as proxies for differences in cultural values and can serve as a relevant instrument for cultural characteristics. The exclusion restriction is plausibly satisfied, as it remains difficult to identify a meaningful additional channel through which genetic distance may influence corruption levels. Nevertheless, we can of course not completely eliminate that possibility. Finally, to strengthen our interpretation we also provide alternative instrumentation strategies in the appendix Table A2.

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<sup>15</sup> Data on genetic distance to both the UK and the US are available and we follow Gorodnichenko and Roland's (2018) recommendation that the UK is more suitable as a reference because it is genetically more homogeneous.

Table 3 presents the results of the instrumental variable regressions for power distance and provides evidence for our central finding that culture mitigates the relationship between female representation and corruption. As we only have one observation per country for genetic distance, we average our data over the period from 1998 to 2014. Throughout Table 3, we only consider those countries for which Hofstede's cultural dimensions are available to ensure the comparability of our results. In columns (1) and (5), we only include the key variables *WIP* and *FLFP*, respectively.

**Table 3: Culture and corruption: Cross-sectional regressions – Power distance instrumented with genetic distance**

	(1) OLS	(2) OLS	(3) IV	(4) IV	(5) OLS	(6) OLS	(7) IV	(8) IV
<b>Second stage – Dependent variable: Corruption Perceptions Index</b>								
WIP	0.107*** (0.023)	0.029 (0.020)	-0.049 (0.031)	-0.058 (0.039)				
FLFP					0.030*** (0.011)	0.003 (0.009)	-0.015 (0.011)	-0.012 (0.012)
Power distance		-0.065*** 0.009	-0.130*** (0.024)	-0.148*** (0.045)		-0.071*** (0.009)	-0.119*** (0.020)	-0.132*** (0.038)
Controls				Yes				Yes
<b>First stage – Dependent variable: Power distance</b>								
Genetic distance			9.901*** (2.056)	6.190*** (2.110)			12.583*** (2.245)	7.665*** (2.505)
WIP			-0.899*** (0.174)	-0.686*** (0.181)				
FLFP							-0.301*** (0.097)	-0.158 (0.110)
Controls				Yes				Yes
# of observations	88	88	88	88	88	88	88	88
F-Stat (first stage)			23.195	8.604			31.416	9.364
Endogeneity test			9.34	8.17			9.77	7.71
AR test statistic			18.71	14.26			25.98	15.04

Notes: Data are averaged over 1998-2014. In columns (3), (4), (7) and (8), power distance is instrumented with Mahalanobis distance of frequency of blood types A and B in a given country relative to the frequency of blood types A and B in the UK from Gorodnichenko and Roland (2011, 2016). Control variables include the polity IV index (variable polity2), openness, a dummy for landlockedness, and tropical climate. The endogeneity test reports the robust score test by Wooldridge (1995). The AR test statistic is the Anderson-Rubin test statistic obtained from Stata's weakiv command. Robust standard errors are reported in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Both independent variables show a positive association with corruption (columns 1 and 5) that vanishes once the cultural factor *power distance* is introduced (columns 2 and 6). *Power distance* is statistically significant at the one percent level and produces a negative coefficient in predicting the absence of corruption.

Specifications (3), (4), (7), and (8) report the results from IV regressions for our two measures of female participation in politics and the labor market. Analyzing the test statistics for the quality of the instrument (Wooldridge 1995, Finlay and Magnusson 2009), using genetic distance is econometrically appropriate. When power distance is instrumented with genetic distance, it remains statistically significant and actually further increases in size.<sup>16</sup> Thus, it is possible that a conventional OLS framework regressing corruption on power distance underestimates the underlying relationship. Confirming previous results, both gender variables lose their explanatory power as soon as *power distance* is included. The respective coefficients are not significant on conventional levels of statistical relevance, indicating a zero effect.

When re-estimating Table 3 with masculinity as the main cultural attribute, we obtain similar results, i.e., the statistical relevance of women in the public sphere vanishes (results available on request). However, the instrument suggested by Gorodnichenko and Roland (2011; 2016) is too weak for masculinity, which is why we restrict our presentation to power distance.

#### ***IV.4 Further robustness tests and extensions***

In the appendix, we first present further strategies to deal with potential endogeneity issues concerning the share of women in parliament and the labor force, as well as culture (see Table

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<sup>16</sup> With first stage F-statistics ranging from 8.5 to 31.4, depending on the control variables used, our instrument produces a reasonable accuracy in predicting *power distance*, though marginally weak in some specifications, as it does not clear the conventional threshold of ten in some instances (see Staiger and Stock 1997 and Stock and Yogo 2005 for tests on weak instruments).

A2).<sup>17</sup> All analyses confirm our main findings, as virtually no effect for WIP or FLFP emerges once cultural attributes are accounted for, both in terms of statistical significance and magnitude.

Second, we include additional control variables used in the literature on corruption (Dollar, Fisman, and Gatti 2001; Svensson 2005; Treisman 2007) into our framework in Tables A3 and A4. In addition to the Polity IV index, we add civil liberties and a press freedom index as institutional controls that might influence the interplay between culture, gender, and corruption. Furthermore, we control for historical factors. Following La Porta, Lopez-de-Silanes, and Shleifer (2008), we add a set of dummy variables to control for a country's legal origin. We also include a binary variable indicating whether a country was colonized. As Treisman (2000) finds that traditionally Protestant countries are perceived to be less corrupt, we control for the share of Protestants in the total population. To account for the possibility that the degree of ethnolinguistic diversity could simultaneously affect culture and the dynamics of political networks, we add the fractionalization index provided by Alesina et al. (2003). Further, we include the average years of schooling as a measure of educational attainment.

Third, we introduce lagged instead of contemporaneous versions of our measures of female representation. If female representation affects corruption perceptions, there is reason to believe that this occurs with a delay. For example, before corruption *perceptions* (as measured by our main dependent variable CPI) change, corruption *levels* would likely have to change first. To take into account that the transmission from women in parliament and the labor force to corruption perceptions probably takes time, we use one- and four year lags of both measures in our regression framework. Tables A5 and A6 show that this strategy produces consistent results.

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<sup>17</sup> We use the log of years of agriculture in 1,500 BC to instrument female representation. Hansen, Jensen, and Skovsgaard (2015) argue that societies with a long history of agriculture developed stronger male-dominated norms and cultural beliefs due to historical gender division of labor. Thus, women in agricultural societies became more dependent on men as compared to hunter-gatherer societies where both men and women contributed to the provision of food (Iversen and Rosenbluth 2010). Being persistent over time, these patriarchal values still influence contemporary gender roles. Conditional on current economic development and geographical controls, an early Neolithic revolution does not only have a significant negative effect on today's *FLFP*, but also on the introduction of female suffrage and *WIP*.



Forth, as the share of women in parliament may vary less outside electoral years, we take four-year averages of all incorporated variables in order to ensure sufficient variation stemming from the electoral cycles. Table A7 shows that the effects of both measures of female representation remain statistically indistinguishable from zero, while power distance produces a negative and statistically powerful effect on the absence of corruption. When masculinity is included as the cultural dimension of interest, we also derive consistent results.

Sixth, we use the World Bank's Control of Corruption index (CoC) as an alternative measure for corruption to ensure that our findings are not specific to the CPI (see Table A8). The statistically significant effect of the share of women in parliament and the labor force is present in a cross-sectional setting, but entirely vanishes once we add country fixed-effects. The inclusion of power distance and masculinity affects the relationship between women and corruption similarly as the inclusion of fixed-effects. Again, we estimate relatively precise zero effects of female participation on corruption when culture is accounted for. Instrumenting power distance with blood distance also yields similar results irrespective of the corruption measure used.

Finally, we rule out the possibility of limited comparability of the CPI over time, as from 2012 onwards a different methodology has been used to construct the CPI. In our final robustness test in Table A9, we check the restricted sample with data until 2011. Again, all findings support our interpretations.

## V. CONCLUDING REMARKS

Does greater representation of women in politics and business systematically decrease corruption levels? This study takes a detailed look at that relationship and our results suggest no statistically or economically significant association once we account for country-specific time-invariant factors.

We first analyze pooled cross-country data and confirm the benchmark results of the previous literature: Higher shares of women in politics and the labor force are correlated with lower levels of corruption. However, once country fixed-effects are incorporated, the observed relationship disappears, i.e., an increase in female participation in society is not associated with a reduction in corruption in the same country. This result emerges both with respect to statistical significance and magnitude, as the correlation between gender and corruption becomes virtually zero once we account for country-specific characteristics.

We then ask which country-specific fundamental characteristics may be able to explain the spurious link between female shares and corruption, focusing on the three benchmark fundamental determinants of development: Culture, geography, and institutions. Interestingly, geographical or institutional variables do not seem to be at play. However, our estimations suggest that cultural attributes have been neglected in previous research. Employing Hofstede's cultural dimensions in a pooled setting (cultural attributes are slow-moving and only available once per country), *power distance* and *masculinity* emerge as strongly correlated with both female representation and corruption levels. Once these cultural variables are taken into account, we obtain relatively precisely estimated zero effects from our measures of female participation on corruption.<sup>18</sup> This suggests that corruption is not directly related to the share of women in politics and the labor market; rather, cultural aspects have been acting as important omitted variables in previous studies. Further support for this conclusion is provided by results from instrumental variable regressions and a battery of robustness checks.

Overall, our results suggest that solely focusing on the number of women in politics and the workplace is unlikely to alleviate corruption *directly*. Nevertheless, more substantive representation of women in the public sphere may play an important role in shaping values and

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<sup>18</sup> Since cultural variables are only available once per country, we cannot implement country-fixed effects in these estimations. Nevertheless, we control for region- and time-fixed effects.

beliefs within a society over longer time spans. For example, increasing female participation rates could reduce the prevalence of masculine values in society in the long-run, thereby reducing cultural features that promote corrupt behavior. Similarly, women's representation could affect policy making in general, which may in turn influence corruption levels. As an example, we refer to studies showing that the participation of women in politics changes the composition of public spending (e.g., see Lott and Kenny, 1999, Aidt and Dallal, 2008, Aidt and Eterovic, 2011, and Bertocchi, 2011) or even foreign aid (see Hicks et al, 2016). Thus, it is possible that higher shares of women in public office could, for example, shift public spending to areas with a different degree of corruption occurrence. Further, policies such as gender quotas have been shown to increase the quality of politicians (e.g., see Baltrunaite et al., 2014). Finally, in general, promoting gender equality and equal opportunity in politics and the workplace could help loosen traditional hierarchies and male-dominated networks, thus reducing power distance and masculinity within society. We leave these hypotheses to be tested in future research.

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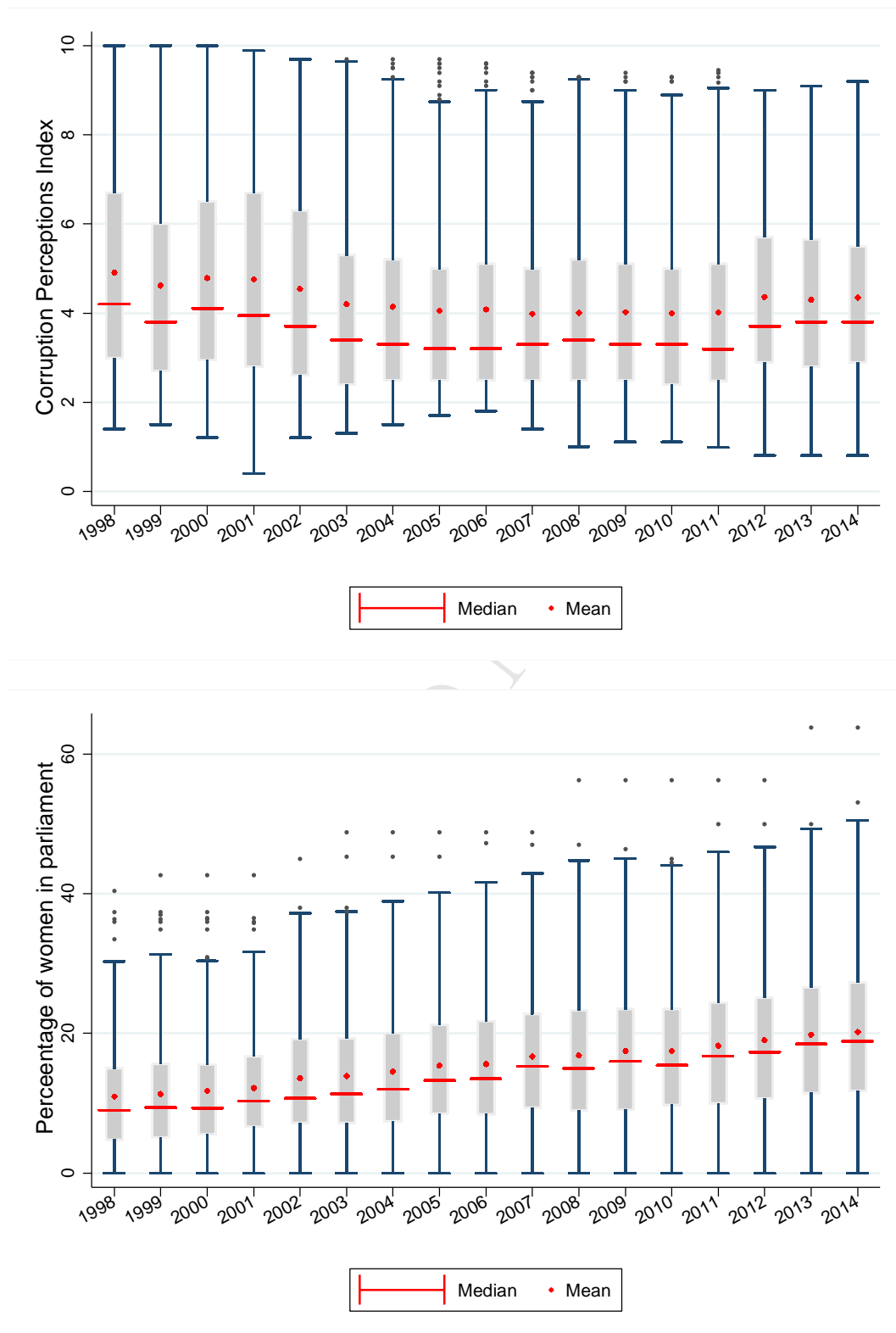
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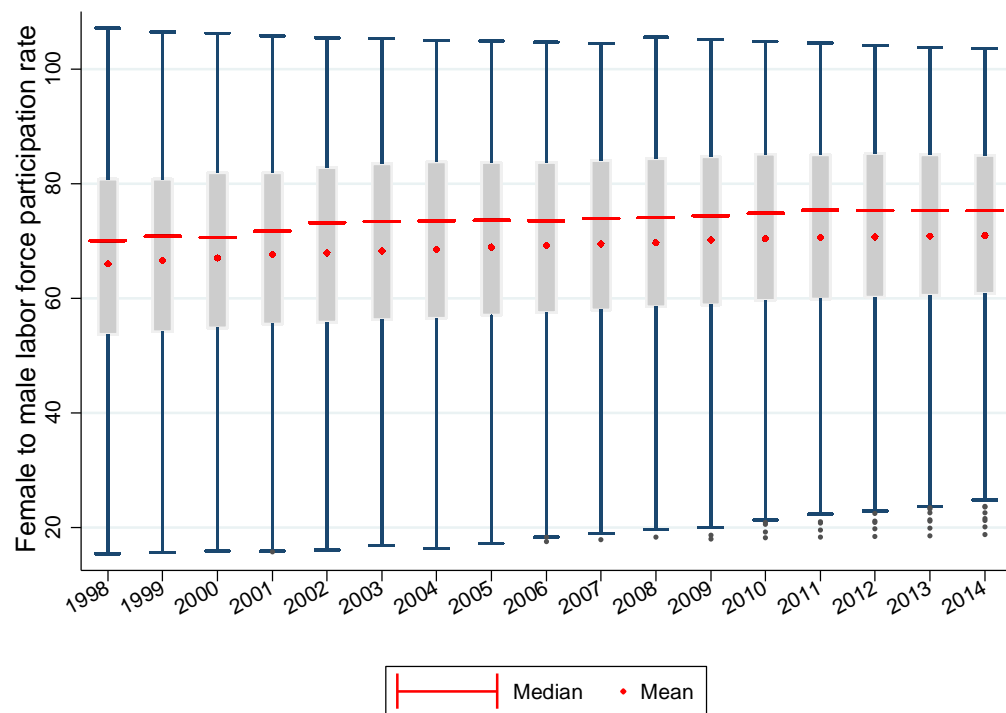


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## ONLINE APPENDIX

**Figure A1:** Boxplots by year, showing mean and median for the three main variables of interest.





**Table A1: Descriptive statistics**

Variable	N	Mean	SD	Min	Max	Source	Description
% women in parliament	3,014	15.77	10.68	0	63.8	Inter-Parliamentary Union (IPU)	Percentage of seats occupied by women in the lower and upper chamber
Female to male labor force participation rate	3,162	69.01	19.81	15.42	107.12	International Labor Organization (ILO)	Number of women divided by number of men in the labor force (population ages 15 and older that is economically active)
CPI	2,480	4.23	2.17	0.4	10	Transparency International	Corruption Perceptions Index, measuring the absence of corruption. 0 (highly corrupt) - 10 (very clean)
CoC	3,017	-0.02	1.00	-1.92	2.59	World Bank Worldwide Governance Indicators	Control of Corruption index; -2.5 (highly corrupt) – 2.5 (very clean)
Ln(GDP/cap)	3,839	8.15	1.63	4.24	11.97	World Development Indicators, World Bank	Log of GDP per capita in constant 2011 international \$, PPP
Polity IV	3,224	3.40	6.50	-10	10	Polity IV Project, Center for Systematic Peace	Variable <i>polity2</i> ; Regime indicator, combining democracy and autocracy indices. -10 (highly autocratic) - 10 (highly democratic)
Civil liberties	3,249	3.33	1.84	1	7	Freedom House	Measure of freedom of expression, assembly, association, education, and religion. 1 (high degree of civil liberties) - 7 (no civil liberties)
Free press	3,746	46.49	24.34	0	100	Freedom House	Measure of overall press freedom. 1 (the most free) - 100 (the least free)
Openness	3,656	90.04	52.93	0.02	531.74	The World Bank	Sum of imports and exports of goods and services (% of GDP)
Schooling	1,947	7.69	3.10	1.10	13.10	UNDP	Average number of years of education received by people ages 25 and older
Ethnolinguistic fractionalization	3,500	0.44	0.26	0	0.93	Alesina et al. (2003)	Degree of ethno-linguistic fractionalization. 0 (homogenous) - 1 (highly diverse)
Protestants	3,540	0.14	0.21	0	0.90	Alesina, Giuliano and Nunn (2013)	Share of protestants in the total population
Tropical climate	3,480	0.74	0.42	0	1	Alesina, Giuliano and Nunn (2013)	Fraction of land in the tropics or subtropics
Landlocked	4,357	0.20	0.40	0	1	The World Bank	Binary variable indicating whether a country is landlocked
Region dummies						The World Bank	Set of dummy variables for seven world regions
Legal origin						La Porta, Lopez-de-Silanes and Shleifer (2008)	Set of dummy variables for UK, French, German, Scandinavian, and Socialist legal origin
Colonial dummy	3,600	0.63	0.48	0	1	Teorell et al. (2013)	Dummy variable indicating whether a country used to be a colony
Power distance	1,840	63.27	21.19	11	100	The Hofstede Centre	Degree to which less powerful members of society accept and expect that power is distributed unequally
Uncertainty avoidance	1,840	63.71	21.32	8	100	The Hofstede Centre	Society's tolerance when it comes to ambiguity and uncertainty
Individualism	1,840	40.29	22.37	6	91	The Hofstede Centre	Degree of interdependence between the members of society
Masculinity	1,840	47.88	18.76	5	100	The Hofstede Centre	Social preference for male values generating a more competitive social environment
Genetic distance	154	1.74	0.81	0.00	3.59	Gorodnichenko and Roland (2018)	Mahalanobis distance of frequency of blood types A and B in a given country relative to the frequency of blood types A and B in the UK
Years agriculture	152	4,783.63	2412.08	362	10,500	Putterman (2008)	Ln (years of agriculture in 1,500 CE) (years since the Neolithic revolution)

**Table A2: Female representation instrumented with years since Neolithic Revolution**

	(1) OLS	(2) OLS	(3) IV WIP	(4) IV WIP	(5) IV WIP/PD	(6) OLS	(7) OLS	(8) IV FLFP	(9) IV FLFP	(10) IV FLFP/PD
<b>Second stage – Dependent variable: Corruption Perceptions Index</b>										
WIP	0.107*** (0.023)	0.029 (0.020)	-0.183 (0.221)	0.019 (0.094)	-0.179 (0.247)					
FLFP						0.030** (0.011)	0.003 (0.010)	-0.037 (0.033)	0.005 (0.023)	-0.032 (0.029)
Power distance		-0.065*** (0.009)	-0.115** (0.056)	-0.053*** (0.016)	-0.179* (0.097)		-0.071*** (0.009)	-0.082*** (0.012)	-0.056*** (0.007)	-0.128*** (0.037)
Controls				Yes	Yes				Yes	Yes
<b>First stage (fs1) – Dependent variable: Female participation (WIP/FLFP)</b>										
Ln(years of agriculture)			-1.871 (1.437)	-3.168** (1.529)	-4.097*** (1.434)			-9.146*** (3.129)	-13.021*** (3.504)	-13.435*** (3.131)
Genetic distance					-1.577 (1.261)					2.321 (2.427)
<b>First stage (fs2) – Dependent variable: Power distance (PD)</b>										
Ln(years of agriculture)					5.955* (3.236)					5.955* (3.236)
Genetic distance					7.027*** (2.300)					7.027*** (2.300)
# of obs.	87	87	87	87	87	87	87	87	87	87
F-Stat (fs1)			1.696	4.293	4.293			8.542	13.808	13.808
F-Stat (fs2)					8.523					9.393

Notes: Data are averaged over 1998-2014. In columns (3), (4), (5), (8), (9) and (10) WIP and FLFP, respectively, is instrumented with the log years since the Neolithic revolution from Putterman (2008). Additionally, in columns (5) and (10), power distance is instrumented with Mahalanobis distance of frequency of blood types A and B in a given country relative to the frequency of blood types A and B in the UK from Gorodnichenko and Roland (2011, 2016). Controls include the polity IV index (polity2 variable), openness, a dummy variable for landlockedness, and tropical climate. All variables included in the second stage are also included in the first stage. To obtain the F-statistics of the first stage, we ran the regressions reported in columns (5) and (10) separately with just one variable instrumented. Robust standard errors are reported in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table A3: Robustness tests for power distance**

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS	(9) OLS	(10) OLS
WIP	0.014 (0.010)	0.017 (0.011)	0.018 (0.011)	0.010 (0.009)	0.015 (0.009)					
FLFP						0.003 (0.007)	0.003 (0.009)	0.011 (0.007)	0.005 (0.007)	0.009 (0.007)
Power distance	-0.020*** (0.005)	-0.019*** (0.005)	-0.017*** (0.006)	-0.015** (0.006)	-0.017*** (0.006)	-0.022*** (0.006)	-0.022*** (0.006)	-0.018*** (0.006)	-0.016** (0.006)	-0.018*** (0.006)
Ln (GDP/cap)	-2.559*** (0.658)	-2.014*** (0.710)	-2.315*** (0.634)	-2.504*** (0.621)	-3.537*** (0.699)	-2.508*** (0.711)	-2.110*** (0.706)	-2.003*** (0.679)	-2.337*** (0.613)	-3.066*** (0.797)
Ln (GDP/cap) <sup>2</sup>	0.201*** (0.041)	0.186*** (0.041)	0.199*** (0.038)	0.205*** (0.038)	0.259*** (0.042)	0.198*** (0.043)	0.192*** (0.040)	0.183*** (0.040)	0.196*** (0.038)	0.235*** (0.045)
Institutions & Openness	Yes					Yes				
Geography		Yes					Yes			
History			Yes					Yes		
Population				Yes					Yes	
Education					Yes					Yes
Region FE		Yes					Yes			
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of observations	1305	1305	1305	1305	885	1305	1305	1305	1305	885
# of countries	89	89	89	89	89	89	89	89	89	89
R <sup>2</sup>	0.827	0.831	0.819	0.819	0.804	0.824	0.827	0.819	0.819	0.804

Notes: Dependent variable: CPI. The following control variables are included. *Institutions & Openness*: Polity IV index, civil liberties, free press index, imports and exports as share of GDP. *Geography*: Landlocked, tropical climate, region fixed effects. *History*: Legal origin, colony dummy. *Population*: Share of Protestants in total population, ethnolinguistic fractionalization. *Education*: Average years of schooling. Robust standard errors clustered at the country level are reported in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table A4: Robustness tests for masculinity**

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS	(9) OLS	(10) OLS
WIP	0.015 (0.011)	0.016 (0.010)	0.025** (0.012)	0.011 (0.010)	0.015 (0.011)					
FLFP						0.004 (0.007)	0.003 (0.008)	0.012 (0.008)	0.007 (0.007)	0.010 (0.007)
Masculinity	-0.012** (0.005)	-0.022*** (0.006)	-0.016*** (0.006)	-0.012** (0.005)	-0.016*** (0.005)	-0.014*** (0.005)	-0.024*** (0.005)	-0.017*** (0.006)	-0.013*** (0.005)	-0.017*** (0.005)
Ln (GPD/cap)	-3.122*** (0.612)	-1.703** (0.684)	-2.704*** (0.630)	-2.875*** (0.564)	-4.222*** (0.641)	-3.081*** (0.688)	-1.802** (0.732)	-2.468*** (0.684)	-2.647*** (0.601)	-3.779*** (0.795)
Ln (GDP/cap) <sup>2</sup>	0.241*** (0.038)	0.181*** (0.040)	0.230*** (0.038)	0.234*** (0.034)	0.302*** (0.037)	0.240*** (0.041)	0.190*** (0.042)	0.220*** (0.041)	0.221*** (0.036)	0.281*** (0.044)
Institutions & Openness	Yes					Yes				
Geography		Yes					Yes			
History			Yes					Yes		
Population				Yes					Yes	
Education					Yes					Yes
Region FE		Yes					Yes			
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of observations	1,305	1,305	1,305	1,305	885	1,305	1,305	1,305	1,305	885
# of countries	89	89	89	89	89	89	89	89	89	89
R <sup>2</sup>	0.820	0.841	0.820	0.818	0.806	0.818	0.837	0.817	0.818	0.806

Notes: Dependent variable: CPI. The following control variables are included. *Institutions & Openness*: Polity IV index, civil liberties, free press index, imports and exports as share of GDP. *Geography*: Landlocked, tropical climate, region fixed effects. *History*: Legal origin, colony dummy. *Population*: Share of Protestants in total population, ethnolinguistic fractionalization. *Education*: Average years of schooling. Robust standard errors clustered at the country level are reported in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**A5: Main findings allowing for lagged adjustment of corruption levels (1 year lags)**

	(1) OLS	(2) FE	(3) OLS	(4) OLS	(5) OLS	(6) FE	(7) OLS	(8) OLS
WIP <sub>t-1</sub>	0.031*** (0.011)	0.008 (0.007)	0.031*** (0.010)	0.007 (0.010)				
FLFP <sub>t-1</sub>					0.017** (0.008)	-0.016 (0.012)	0.016* (0.009)	0.006 (0.009)
Ln (GDP/cap)	-3.299*** (0.617)	2.694** (1.306)	-2.049** (0.877)	-1.655** (0.672)	-2.907*** (0.669)	2.746* (1.391)	-2.008** (0.811)	-1.534** (0.720)
Ln (GDP/cap) <sup>2</sup>	0.260*** (0.037)	-0.076 (0.087)	0.193*** (0.049)	0.171*** (0.039)	0.241*** (0.040)	-0.093 (0.089)	0.196*** (0.046)	0.166*** (0.041)
Polity IV			0.033 (0.021)				0.031 (0.021)	
Openness			0.003 (0.002)				0.003 (0.002)	
Landlocked			-0.012 (0.283)				-0.181 (0.259)	
Tropical climate			-0.534 (0.395)				-0.516 (0.432)	
Power distance				-0.016*** (0.005)				-0.016*** (0.006)
Masculinity				-0.019*** (0.005)				-0.019*** (0.005)
Country FE		Yes				Yes		
Region FE			Yes	Yes			Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of observations	1219	1219	1219	1219	1291	1291	1291	1291
# of countries	80	80	80					
R <sup>2</sup>	0.778	0.179	0.811	0.838	0.777	0.186	0.809	0.840

Notes: Dependent variable: CPI. Robust standard errors clustered at the country level are reported in parentheses. Measures of female participation included as lagged variables dated t-1. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**A6: Main findings allowing for lagged adjustment of corruption levels (4 year lags)**

	(1) OLS	(2) FE	(3) OLS	(4) OLS	(5) OLS	(6) FE	(7) OLS	(8) OLS
WIP <sub>t-4</sub>	0.032*** (0.011)	0.002 (0.007)	0.030*** (0.011)	0.007 (0.010)				
FLFP <sub>t-4</sub>					0.017** (0.007)	-0.019 (0.013)	0.014 (0.009)	0.005 (0.009)
Ln (GDP/cap)	-3.308*** (0.629)	4.616*** (1.534)	-1.988** (0.901)	-1.633** (0.690)	-2.983*** (0.674)	3.972** (1.589)	-2.123** (0.849)	-1.640** (0.736)
Ln (GDP/cap) <sup>2</sup>	0.259*** (0.038)	-0.193* (0.103)	0.189*** (0.051)	0.170*** (0.040)	0.245*** (0.040)	-0.162 (0.105)	0.202*** (0.048)	0.171*** (0.042)
Polity IV			0.026 (0.022)				0.030 (0.021)	
Openness			0.003 (0.002)				0.003 (0.002)	
Landlocked			-0.005 (0.288)				-0.173 (0.261)	
Tropical climate			-0.576 (0.391)				-0.592 (0.439)	
Power distance				-0.015*** (0.005)				-0.016*** (0.006)
Masculinity				-0.019*** (0.005)				-0.019*** (0.005)
Country FE		yes				yes		
Region FE			yes	yes			yes	yes
Time FE	yes	yes	yes	yes	yes	yes	yes	yes
# of observations	1022	1022	1022	1022	1087	1087	1087	1087
# of countries	80	80	80	80	80	80	80	80
R <sup>2</sup>	0.778	0.203	0.811	0.836	0.775	0.221	0.808	0.838

Notes: Dependent variable: CPI. Robust standard errors clustered at the country level are reported in parentheses. Measures of female participation included as lagged variables dated t-4. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table A7: Main findings incorporating four year averages of all incorporated variables**

	(1) OLS	(2) FE	(3) OLS	(4) OLS	(5) OLS	(6) FE	(7) OLS	(8) OLS
WIP	0.028** (0.012)	0.006 (0.010)	0.028** (0.011)	0.005 (0.010)				
FLFP					0.017** (0.007)	-0.019 (0.013)	0.018** (0.009)	0.007 (0.009)
Power distance				-0.016*** (0.005)				-0.016*** (0.006)
Masculinity				-0.019*** (0.005)				-0.019*** (0.005)
Ln (GDP/cap)	-3.454*** (0.637)	2.869** (1.333)	-1.952** (0.930)	-1.728** (0.689)	-2.914*** (0.670)	2.454* (1.425)	-1.903** (0.869)	-1.561** (0.767)
Ln (GDP/cap) <sup>2</sup>	0.270*** (0.038)	-0.096 (0.090)	0.190*** (0.052)	0.176*** (0.040)	0.241*** (0.040)	-0.081 (0.092)	0.191*** (0.049)	0.167*** (0.044)
Polity IV			0.028 (0.023)				0.025 (0.023)	
Openness			0.003 (0.002)				0.003 (0.002)	
Landlocked			0.094 (0.300)				-0.087 (0.273)	
Tropical climate			-0.526 (0.401)				-0.491 (0.438)	
Country FE	No	Yes	No	No	No	Yes	No	No
Region FE			Yes	Yes			Yes	Yes
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of observations	335	335	335	335	335	335	335	335
# of countries	90	90	90	90	90	90	90	90
R <sup>2</sup>	0.781	0.192	0.817	0.845	0.783	0.199	0.814	0.846

Notes: Dependent variable: CPI. Robust standard errors clustered at the country level are reported in parentheses. The data are averaged over 5 and 4 periods, respectively. More precisely, the first period is 1998-2002, the second period is 2003-2006, the third period 2007-2010, and the fourth period 2011-2014. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*



**Table A8: Main findings using alternative measure of corruption: Robustness tests with CoC index**

	(1) OLS	(2) FE	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) OLS	(8) FE	(9) OLS	(10) OLS	(11) IV	(12) IV
WIP	0.014*** (0.005)	0.000 (0.002)	0.013*** (0.005)	0.003 (0.004)	-0.023 (0.015)	-0.027 (0.019)						
FLFP							0.010*** (0.003)	0.008 (0.005)	0.010** (0.004)	0.005 (0.004)	-0.006 (0.005)	-0.005 (0.005)
Ln (GDP/cap)	-1.595*** (0.288)	0.476 (0.455)	-0.818* (0.412)	-0.769** (0.304)			-1.274*** (0.312)	0.660 (0.431)	-0.758* (0.390)	-0.666* (0.348)		
Ln (GDP/cap) <sup>2</sup>	0.125*** (0.017)	-0.001 (0.028)	0.084*** (0.023)	0.081*** (0.018)			0.107*** (0.019)	-0.010 (0.026)	0.082*** (0.022)	0.076*** (0.020)		
Polity IV			0.008 (0.010)			-0.051 (0.038)			0.010 (0.010)			-0.045 (0.036)
Openness			0.001 (0.001)			0.005* (0.003)			0.001 (0.001)			0.004 (0.003)
Landlocked			0.100 (0.134)			-0.239 (0.332)			0.007 (0.120)			-0.114 (0.312)
Tropical climate			-0.190 (0.182)			-0.267 (0.347)			-0.166 (0.189)			-0.252 (0.361)
Power distance				-0.006** (0.002)	-0.061*** (0.012)	-0.069*** (0.021)				-0.006** (0.003)	-0.056*** (0.009)	-0.061*** (0.018)
Masculinity				-0.009*** (0.003)						-0.009*** (0.002)		
Country FE		Yes						Yes				
Region FE			Yes	Yes					Yes	Yes		
Times FE	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes		
# of obs.	1,237	1,237	1,237	1,237	88	88	1,284	1,284	1,284	1,284	88	88
# of countries	90	90	90	90	88	88	90	90	90	90	88	88
R <sup>2</sup>	0.779	0.096	0.812	0.838	0.194	0.138	0.783	0.105	0.812	0.839	0.278	0.261
F-Stat (first stage)					23.195	8.604					31.416	9.364

Notes: Dependent variable: CoC. Robust standard errors clustered at the country level are reported in parentheses. In columns (5), (6), (11) and (12) power distance is instrumented with blood distance. Data averaged over 1998-2014 is used for the IV regressions. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table A9: Main findings using only data until 2011**

	(1) OLS	(2) FE	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) OLS	(8) OLS	(9) FE	(10) OLS	(11) IV	(12) IV
WIP	0.033*** (0.011)	0.001 (0.008)	0.035*** (0.011)	0.009 (0.011)	-0.049 0.031	-0.058 0.039						
FLFP							0.015* (0.008)	-0.012 (0.011)	0.017* (0.009)	0.006 (0.009)	-0.015 0.011	-0.012 0.012
Ln (GDP/cap)	-3.313*** (0.650)	1.950 (1.254)	-2.154** (0.829)	-1.684** (0.659)			-3.027*** (0.683)	1.598 (1.327)	-2.159*** (0.792)	-1.606** (0.706)		
Ln (GDP/cap) <sup>2</sup>	0.263*** (0.039)	-0.062 (0.083)	0.200*** (0.047)	0.175*** (0.039)			0.251*** (0.041)	-0.049 (0.083)	0.207*** (0.045)	0.172*** (0.041)		
Polity IV			0.040* (0.021)			-0.119 0.079			0.035 (0.022)			-0.106 0.075
Openness			0.004* (0.002)			0.010* 0.006			0.004* (0.002)			0.010* 0.006
Landlocked			-0.055 (0.279)			-0.605 0.710			-0.242 (0.265)			-0.324 0.669
Tropical climate			-0.510 (0.380)			-0.530 0.749			-0.510 (0.440)			-0.506 0.773
Power distance				-0.018*** (0.005)	-0.130*** 0.024	-0.148*** 0.045				-0.018*** (0.006)	-0.119*** 0.020	-0.132*** 0.038
Masculinity				-0.018*** (0.005)						-0.019*** (0.005)		
Country FE		Yes							Yes			
Region FE			Yes	Yes					Yes	Yes		
Times FE	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes		
# of obs.	1,070	1,070	1,070	1,070	88	88	1,104	1,104	1,104	1,104	88	88
# of countries	90	90	90	90	88	88	90	90	90	90	88	88
R <sup>2</sup>	0.789	0.058	0.824	0.847	0.219	0.144	0.784	0.063	0.817	0.848	0.301	0.272
F-Stat (first stage)					23.195	8.604					31.416	9.364

Notes: Dependent variable: CPI. Only observations until 2011 included. Robust standard errors clustered at the country level are reported in parentheses. In columns (5), (6), (11) and (12) power distance is instrumented with blood distance. Data averaged over 1998-2011 is used for the IV regressions. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A10: Sample countries

AFRICA	ASIA	AMERICA	EUROPE	OCEANIA
Algeria	Afghanistan	Argentina	Albania	Australia
Angola	Bahrain	Bahamas, The	Armenia	Fiji
Benin	Bangladesh	Barbados	Austria	New Zealand
Botswana	Bhutan	Belize	Azerbaijan	Papua New
Burkina Faso	Cambodia	Bolivia	Belarus	Guinea
Burundi	China	Brazil	Belgium	Samoa
Cameroon	India	Canada	Bosnia and Herzegovina	Tonga
Cape Verde	Indonesia	Chile	Bulgaria	Vanuatu
Central African Repub	Iran, Islamic Rep.	Colombia	Croatia	
Chad	Iraq	Costa Rica	Cyprus	
Comoros	Israel	Cuba	Czech Republic	
Congo, Dem. Rep.	Japan	Dominican Republic	Denmark	
Congo, Rep.	Jordan	Ecuador	Estonia	
Cote d'Ivoire	Kazakhstan	El Salvador	Finland	
Djibouti	Korea, Dem. Rep.	Guatemala	France	
Egypt, Arab Rep.	Korea, Rep.	Guyana	Georgia	
Equatorial Guinea	Kuwait	Haiti	Germany	
Eritrea	Kyrgyz Republic	Honduras	Greece	
Ethiopia	Lao PDR	Jamaica	Hungary	
Gabon	Lebanon	Mexico	Iceland	
Gambia, The	Malaysia	Nicaragua	Ireland	
Ghana	Maldives	Panama	Italy	
Guinea	Mongolia	Paraguay	Latvia	
Guinea-Bissau	Nepal	Peru	Lithuania	
Kenya	Oman	St. Lucia	Luxembourg	
Lesotho	Pakistan	St. Vincent and the Grenadines	Macedonia, FYR	
Libya	Philippines	Sudan	Malta	
Madagascar	Qatar	Suriname	Moldova	
Malawi	Russian Federation	Trinidad and Tobago	Montenegro	
Mali	Saudi Arabia	United States	Netherlands	
Mauritania	Singapore	Uruguay	Norway	
Mauritius	Sri Lanka	Venezuela, RB	Poland	
Morocco	Timor-Leste		Portugal	
Mozambique	Tajikistan		Romania	
Namibia	Thailand		Serbia	
Niger	Turkey		Slovak Republic	
Nigeria	Turkmenistan		Slovenia	
Rwanda	United Arab Emirates		Spain	
Sao Tome and Principe	Uzbekistan		Sweden	
Senegal	Vietnam		Switzerland	
Sierra Leone	Yemen, Rep.		Ukraine	
South Africa			United Kingdom	
Swaziland				
Tanzania				
Togo				
Tunisia				
Uganda				
Zambia				
Zimbabwe				

**Table A11: Sample countries when Hofstede's culture dimensions are introduced**

<b>AFRICA</b>	<b>ASIA</b>	<b>AMERICA</b>	<b>EUROPE</b>	<b>OCEANIA</b>
Angola	Bangladesh	Argentina	Albania	Australia
Burkina Faso	Bhutan	Brazil	Austria	Fiji
Ethiopia	China	Canada	Belgium	New Zealand
Ghana	India	Chile	Bulgaria	
Kenya	Indonesia	Colombia	Croatia	
Libya	Iraq	Costa Rica	Czech Republic	
Malawi	Israel	Dominican Republic	Denmark	
Morocco	Japan	Ecuador	Estonia	
Mozambique	Jordan	El Salvador	Finland	
Namibia	Kuwait	Guatemala	France	
Nigeria	Lebanon	Honduras	Germany	
Senegal	Malaysia	Jamaica	Greece	
Sierra Leone	Nepal	Mexico	Hungary	
South Africa	Pakistan	Panama	Ireland	
Tanzania	Philippines	Peru	Italy	
Zambia	Saudi Arabia	Suriname	Latvia	
	Singapore	Trinidad and Tobago	Lithuania	
	Sri Lanka	United States	Luxembourg	
	Thailand	Uruguay	Netherlands	
	Turkey		Norway	
	United Arab Emirates		Poland	
	Vietnam		Portugal	
			Romania	
			Serbia	
			Slovak Republic	
			Slovenia	
			Spain	
			Sweden	
			Switzerland	
			United Kingdom	

**Highlights**

- There is no direct link between women in politics or the labor force and corruption
- Country-fixed effects render the link meaningless
- Institutions and geography are unable to explain away the link but culture can
- Power distance and masculinity are driving the correlation
- Results are robust to accounting for endogeneity and numerous alternative checks